

**Union Pacific Railroad Community Meeting  
Diesel Particulate Matter Mitigation Plan for the  
ICTF & Dolores Railyards  
Long Beach, CA  
November 12, 2008**



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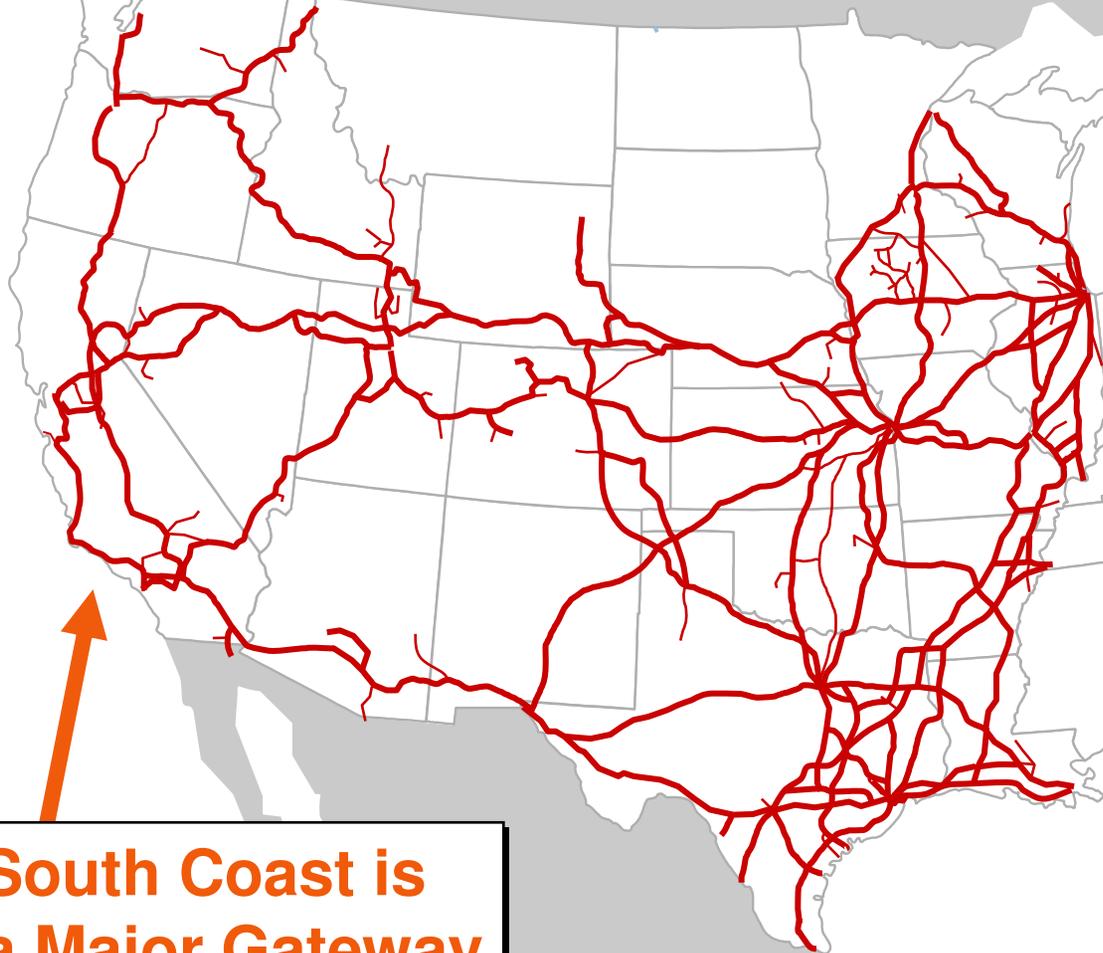
# Agenda

- Emissions Trends Summary
- System and Facility Overview
- 2005 Baseline Inventory
- Current and Proposed Mitigation Measures
  - **We need your help to identify additional ideas for potential emissions reductions**
- Emission Trends – Past and Future
- Evaluation of Mitigation Measures

# Emission Trends – DPM Reductions from 2005 Baseline

- **Actual**
  - 9% by 2007
  - 40% by end of 2008 (estimated)
- **Projected**
  - 74% by 2020, including expected growth

# Union Pacific System Overview



**South Coast is  
a Major Gateway**

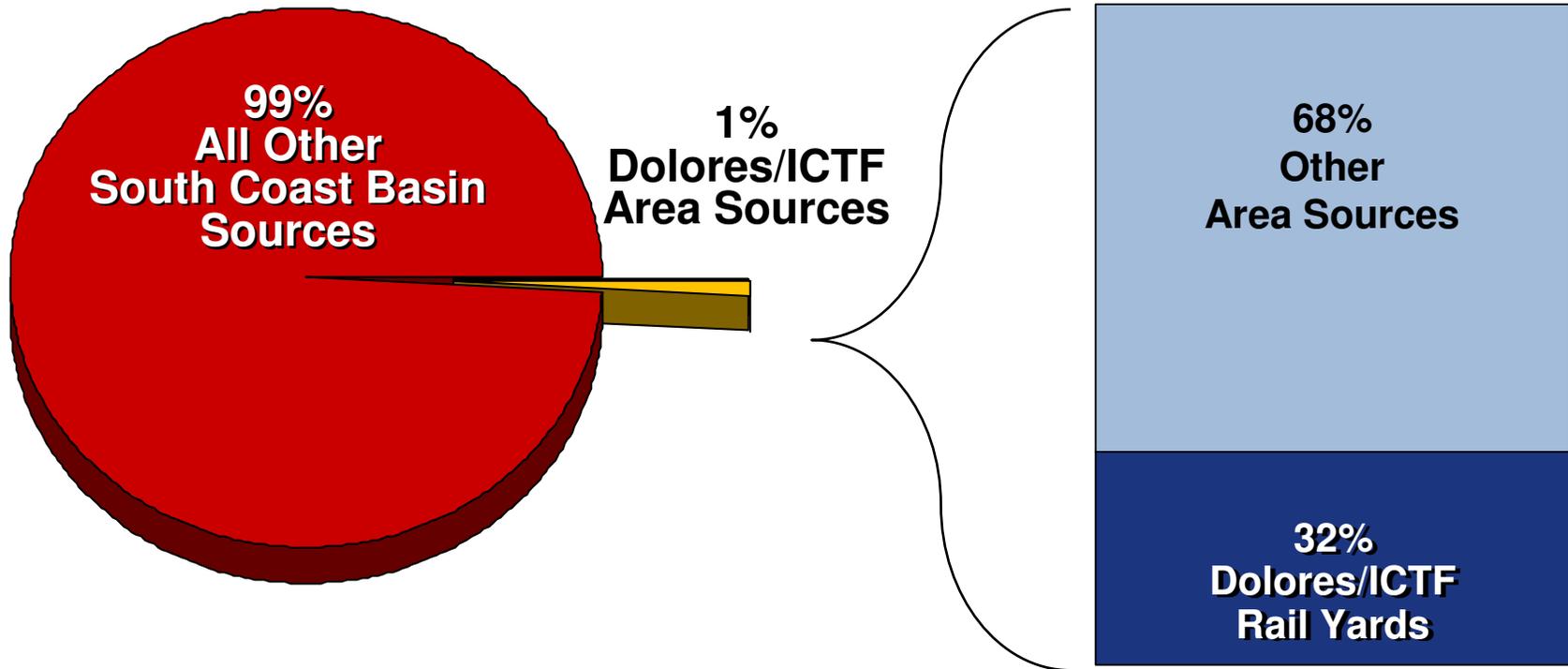
## Fast Facts

- **Miles of Track**
  - 32,300 in 23 States
  - 3,455 in California
  - 1,272 in Los Angeles area
- **Employees**
  - 50,000+ in US
  - 5,860 in California
  - 1,900 in Los Angeles area

# Facility Overview

- **230+/- Acres for Locomotive Servicing & Cargo Handling**
- **Yard Includes:**
  - Receiving Tracks
  - Tracks Used to Maintain Locomotives (Light Repair)
  - Tracks Used to Load and Unload Containers From Rail Cars, and for Train Departures
- **Facility Operates 24 Hours a Day, 365 Days a Year**
- **About 20 Trains a Day Operate Through or Originate / Terminate at UP's Yards**

# Comparison with Other Sources of DPM Emissions



**Total DPM Emissions – All South Coast Sources: 7750 tons per year**

# 2005 Baseline Emissions Inventory

Equipment Category	DPM Emissions (tpy)
<b>Locomotives</b>	<b>8.0</b>
- <i>Line Haul</i>	<i>1.2</i>
- <i>Switch</i>	<i>5.6</i>
- <i>Shop/Service</i>	<i>1.2</i>
<b>Cargo Handling Equipment</b>	<b>4.4</b>
<b>Diesel Drayage Trucks</b>	<b>5.9</b>
<b>Diesel-Fueled Heavy Equipment</b>	<b>0.4</b>
<b>TRUs and Reefer Cars</b>	<b>1.5</b>
<b>Other Stationary Sources</b>	<b>0.06</b>
<b>TOTAL</b>	<b>20.3</b>

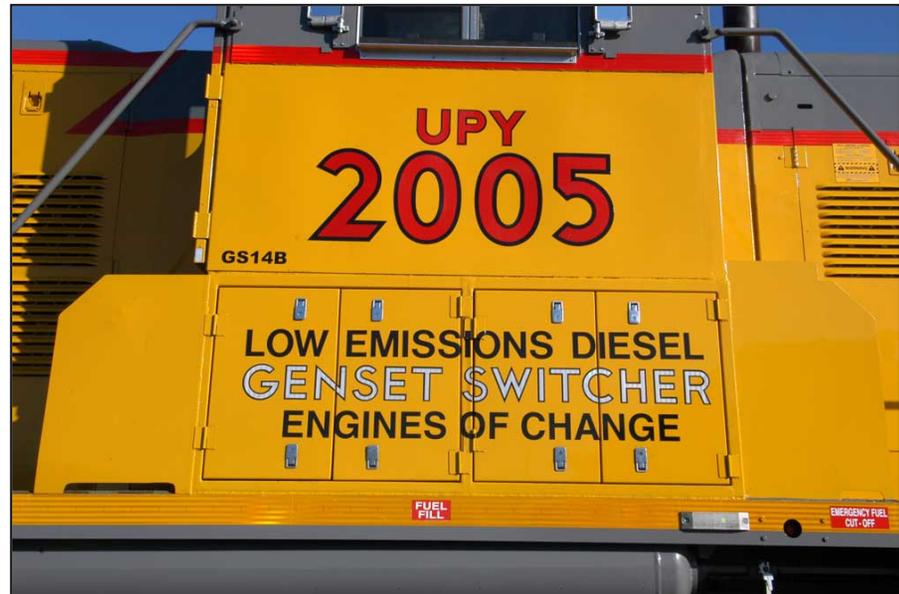
# Current UP Emission Reduction Measures

- **Continued Aggressive Acquisition & Use of Tier 2 Road Locomotives With Advanced Emission Controls**
  - 1,189 Tier 2 Locomotives thru October 2008
  - 5,500+ Tier 0, 1, or 2 Locomotives in the Fleet
- **Continued Remanufacture of Older Locomotives With New, Lower Emitting Components**
  - 2,000 Units Since 2000
- **On Target for Tier 2 Fleet Average in SoCal by 2010**



# Current UP Emission Reduction Measures, Cont.

- **Ultra Low Emitting Locomotives (ULEL's)**
  - Reduce NOx & PM Emissions by +/- 85%
  - Reduce Fuel Consumption by 16 - 37 %
- **Expanded Use of Technologically Advanced Switch Locomotives**
  - Gensets - 12 in or around ICTF
  - Gensets - 61 in South Coast
  - Green Goats - 12 in South Coast



## Current UP Emission Reduction Measures, Cont.

- **Increased Use of Idle Control Devices (ICD's) for Auto Start-Stop of Locomotives**
  - 100% of CA Intrastate Units Equipped
  - 35% of UPRR Total Fleet
  - All New Locomotives Since 2001 Have Factory ICD's
- **Supported research and development efforts**
  - UPRR has invested > \$37M in locomotive R&D since 1989
- **Aggressive Conservation = Lower Emissions**
  - A 12% improvement in fuel efficiency achieved since 1995

## Current UP Emission Reduction Measures, Cont.

- **Use of cleaner fuels – only Ultra Low Sulfur Diesel (ULSD) is dispensed in CA**
- **Cleaner Cargo Handling Equipment (CHE)**
  - In 2007, retired 9 pieces of higher-emitting equipment (8 yard hostlers and 1 manlift). The manlift was replaced with a new cleaner unit
  - VDECS will be installed on each new unit in 2008
  - All Diesel-fueled CHE will be replaced by electric Wide Span Gantry (WSG) Cranes by 2012
- **Employee Training**
  - Fuel Conservation Via Use of Simulators
  - Locomotive Shutdown Procedures
  - Visible Emissions

# Proposed Future Emission Reduction Measures

- **Continued acquisition of ULEL locomotives**
- **Continued acquisition of Tier 2 locomotives and newer technology (i.e. Tier 3 and 4) when available**
- **Continued remanufacture and retrofit of older line haul locomotives with lower emitting components**
- **Continued support of locomotive research and development efforts**
- **Continued Aggressive Employee Training**
  - **Fuel Conservation Via Use of Simulators**
  - **Locomotive Shutdown Procedures**
  - **Visible Emissions**

# Proposed Future Emission Reduction Measures, Cont.

- **Complete replacement of Diesel-fueled CHE**
  - By end of 2008, all of the 1999 model year yard hostlers (15 units) will be retired.
  - By 2012, all Diesel-fueled CHE will be replaced by electric WSGs
- **Cleaner drayage fleet**
  - Natural fleet turnover
  - Reduced idling due to installation of Automated Gate System (AGS)
  - Port's Clean Truck Program
  - CARB's proposed drayage truck regulation
- **Cleaner TRUs**
  - Beginning in 2008, TRUs operating at ICTF will be required to meet lower emission standards. Standards are further reduced in 2010.

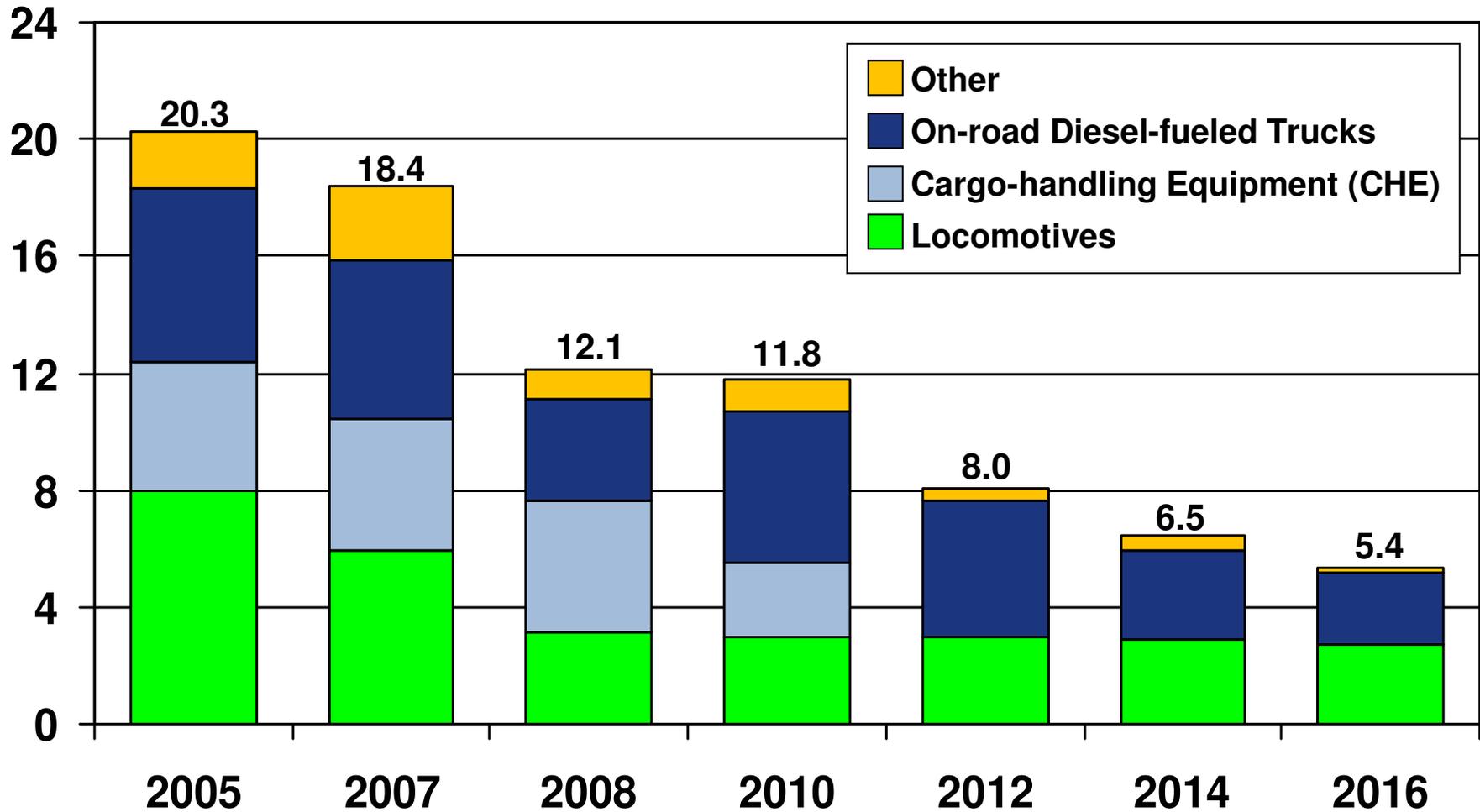
# Summary of Reductions by Source

Equipment Type	2005	2007	2010	2012	2014	2016
Line Haul Locomotives	Fleet is Continuously Being Improved					
Genset Switchers, % of Total	0%	>80%	>80%	>80%	>80%	>80%
Cargo Handling Equipment % of Total Upgraded	94 Units 0%	9 of 94 10%	26 of 94 28%	94 of 94 100%	NA 100%	NA 100%
Drayage Trucks	Truck Owners Must Comply with Either the Port's Truck Rule, CARB's Drayage Truck Rule, and/or other appropriate State and Federal Regulations					
TRUs and Reefer Cars	TRU Owners Must Comply with CARB's Airborne Toxic Control Measure (ATCM) for TRUs					

Note: UPRR does not own or operate the drayage trucks and/or TRUs and reefer cars.

# DPM Emissions by Source (Calendar Years 2005-2016)

Emissions (Tons / Year)



# Criteria for Evaluation of Mitigation Measures

- **Safe**
- **Technologically Feasible**
- **Consistent w/ Legal Requirements (i.e. – FRA)**
- **Operationally Feasible**
- **Cost Effective**
- **Other Yard Specific Considerations**

THE ROAD TO THE FUTURE ISN'T A ROAD AT ALL.

